AGRI-FOOD INNOVATION FUND

20000142

MINOR USE REGISTRATION RESEARCH

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Saskatchewan

Minor Use Registration Research – AFIF #20000142

Final Report

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A. ABSTRACT/SUMMARY

In 2002 the Agri-Food Innovation Fund (AFIF) entered into a contract with the Provincial Council of ADD Boards (PCAB) to administer $330,000 for minor use of pesticide research. The contract was to run over a five year period with an administration fee of 10% and a maximum limit of $70,000 to be expended each year. The contract is overseen by a steering committee consisting of 3 Saskatchewan Agriculture representatives, 2 PCAB representatives and a representative from Agriculture and Agri-Food Canada.

The Minor Use Research Initiative funded 111 trials over the 6-year period of the contract. Trials were conducted on 19 crops at facilities at Agriculture and Agri-Food Canada (AAFC) Scott (Western Applied Research Committee), AAFC Swift Current (Wheatland Conservation Area Inc.), AAFC Indian Head (Indian Head Agriculture Research Foundation), Crop Development Centre and Horticulture Department of the University of Saskatchewan.

The data collected has been used in data packages that have been successful in obtaining minor use registrations and minor use applications that are currently pending approval. It is also anticipated that the data will also be used in future minor use applications.

B. INTRODUCTION

The limited acres of new or special crops often results in few pesticide options for growers because manufacturers and registrants view the market as too small to justify their time and effort to register a product. In order to address this constraint, the minor use of pesticide program was established.

The regulatory oversight of the minor use program is provided by the Pest Management Regulatory Agency of Health Canada, while the national coordination and funding of research is managed by the Pest Management Centre of Agriculture and Agri-Food Canada. Under the Agri-Food Innovation Fund (AFIF) Spoke program substantial minor use research was conducted. It contributed to minor use registrations such as metribuzin on chickpea, clethodim on chickpea and dry bean, and sethoxydim on chickpea.

With the end of the 5-year AFIF Spoke program on March 31, 2002, there was a desire to maintain the capability of addressing crop protection options for new and special crops. As a result, the Agri-Food Innovation Fund entered into a contract with the Provincial Council of ADD Boards (PCAB) to administer $330,000 for minor use of pesticide research. The contract was to run over a five year period with an administration fee of 10% and a maximum limit of $70,000 to be expended each year.

C. METHODS

On an annual basis, a PCAB Minor Use Initiative Steering Committee solicited proposals from public research institutions to conduct minor use of pesticide projects. The Committee reviewed and selected eligible projects for funding. The Committee requested and reviewed the field research results each year and before payment was made to the proponent. The Committee used the following terms of reference.

The primary role of the Steering Committee is to:

- *Provide guidance to the Agri-Food Innovation Fund (AFIF) and the Provincial Council of ADD Boards (PCAB) Inc. in the management of the funds allocated to the Minor Use of Pesticides Initiative in support of crop diversification that will benefit the producers of Saskatchewan.*
- *Review the services provided and research undertaken and assess the direction of these activities to ensure the objectives of the Initiative are being met.*

Membership

- *The Committee will be comprised of three provincial employees from Saskatchewan Agriculture (Mr. Doug Billett, Mr. Ray McVicar, Mr. Jody McConnell (subsequently replaced by Mr. Zane Lewchuk), one representative from Agriculture and Agri-Food Canada (Mr. Terry Hogg) and two representatives from PCAB (Mr. Alex Mitchell, Mr. Allan Oliver).*
- *Research proponents/applicants may attend by invitation of the Committee.*

Reporting Relationships/Decision Making

- *The Committee shall provide an annual report to the AFIF Board (as per contract).*
- *Decisions of the Committee will be reached by consensus using the guidelines listed.*

Chairperson

- *A Saskatchewan Agriculture representative (Mr. Doug Billett) shall chair the Committee (as per contract).*

Meetings

- *There will be a minimum of 2 meetings (i.e. one pre-seeding and one post-harvest) per year supplemented as required by conference calls at the discretion of the chair or at the request of a member.*
- *The meeting location and timing will be decided upon by the Committee members.*

Steering Committee Costs and Expenses

- *As per the PCAB/AFIF contract and as amended from time to time.*

Time Frame

- *As per the PCAB/AFIF contract.*

Project Payment

- *Approved projects will be paid at determined amounts on a per treatment basis (i.e. $250.00 per treatment for standard trials and $400.00 per treatment to bearing small and large fruit trees).*
- *All relevant costs are eligible, however, re-cropping treatments will only be eligible if requested by the Pest Management Regulatory Agency (PMRA).*

Guidelines/Considerations for Project Review and Decision Making

1. *User Requested Minor Use Label Expansion (URMULE) – active ingredient and end product registered in Canada versus User Requested Minor Use Registration (URMUR) – active ingredient that is registered (within last 5 years) in an OECD country but is not registered in Canada.*

2. *For URMULE projects, it must be demonstrated that the registrant is willing to add the new use to the existing product label (i.e. a letter of support or notice of intent).*

3. *Crop Value.*
    a. *Gross sales minus input costs (net return $/acre).*
    b. *Number of growers affected.*
    c. *Value-added potential.*
    d. *Crop considerations and likelihood of success (adaptation, markets, market access, regulatory, other constraints).*

4. *Economic Importance of the Pest*
    a. *Magnitude of the threat to the crop.*

5. *Linkage to Canadian (AAFC) and U.S.A. IR-4 Justifications*
    a. *No pest control product registered to control pest.*
    b. *New introduced pest problem*
    c. *Old technology replacement*
    d. *Resistance management tool*
    e. *Reduced risk pesticide*
    f. *New IPM approach*
    g. *Export crop with need for harmonized pest control options and crop tolerances*
    h. *More effective pesticide resulting in overall pesticide reduction*
    i. *New crop*
    j. *IPM compatibility, low toxicity to predators*

Changes from Original Terms of Reference/Plan

- Steering Committee approved increasing eligible payment of $300 per treatment from $250 treatment (April 18, 2005).
- After payment for 2005/06 research trials the remaining funds totaled $148, 229.45. The amount requested by research institutions and the amount expended has been declining each year of the project. There were two major reasons;
    - The implementation of a National Minor Use of Pesticides Program has addressed many of Saskatchewan historical and emerging minor use priorities.
    - The research capacity for minor use research in Saskatchewan has declined.

  It was the Steering Committee's belief that at the current rate of funding the program could exist for another 6 to 7 years. However, the Steering Committee considered options that will stimulate minor use research in Saskatchewan to meet existing priorities and sunset the program by 2007/08.

  At a Provincial Minor Use meeting in January 2006 of producer, research and provincial expertise developed a list of priority minor use needs/wishes. This list was then circulated for expressions of interest from research institutions. As a result, a two year research program was developed that met provincial minor priorities and would exhaust the remaining funds in the contract.

  Following PCAB final fee payment (i.e. $6,600.00) a total of $141,629.45 remained in the project for field research. The Steering Committee proposed that the funds be expended over the next two years ($70,815.00 per year) on the projects listed in a revised work plan (see below).

Proposed Project Work Plan for 2006/07 and 2007/08

CROP	PRODUCT	PEST	INSTITUTION	TREAT MENTS	LOCATIONS	COST $ 06/07	COST $ 07/08
Potato 2006-01		Wireworm	U. of S.	6	1	1800	1800
Lentil 2006-02	imazethapyr	B-L weed	Scott	8	3 (CDC, Scott, IHARF)	7200	7200
Chickpea 2006-03	imazethapyr	B-L weed	Scott	8	3 (CDC, Scott, IHARF)	7200	7200
Chickpea 2006-04	sulfentrazone	Reduced rate	Scott	7	4 (Scott, IHARF, CDC, Wheatlands)	8400	8400
Chickpea 2006-05	sulfentrazone (fall)	B-L weed	Scott	7	4 (Scott, IHARF, CDC, Wheatlands)	8400	8400
Chickpea 2006-06	sulfentrazone + isoxaflutole	B-L weed	Scott	17	2 (Scott, CDC)	10200	10200
Coriander/ Caraway 2006-07	azoxystrobin	label improvement	U. of S.	14	1	4200	4200
Cumin 2006-08	screening	disease	U. of S.	7	1	2100	2100
Alfalfa seed 2006-09	screening	Canada thistle	Scott	12	2 (Scott, IHARF)	7200	7200
Golden millet 2006-10	screening	Weed	IHARF	9	2	5400	5400
Hemp 2006-11	screening	Weed	Scott	15	2 (Scott, CDC)	9000	9000
Pumpkin 2006-12	screening	sclerotinia	U. of S.	11	1	3300	3300
Mustard 2006-13	Screening	B-L weed	Scott	15	1 (CDC)	4500	4500

The Steering Committee recommended to the AFIF Board that:

- AFIF approve the proposed work plan (i.e. two year research program).
- AFIF extend the project beyond 2006/07 contract date to include 2007/08.
- AFIF waive the $70,000 per annum limit.

The recommendations were accepted and approved by the AFIF Board.

D. RESULTS

Over the six years of the project a significant number of minor use field trials were conducted. The trials focused on grower priorities. There was a concerted effort by the Steering Committee to compliment the national minor use program and fill data/knowledge gaps when identified. There was also an attempt to distribute the trials across the province.

Trials Funded 2002-2007

Crop	# of Trials	Discipline	Location
Chickpea	36	Weed control	CDC, SPARC/Wheatland, Scott/WARC
Canaryseed	16	Weed control	CDC, SPARC/Wheatland, Scott/WARC, IHARF
Re-cropping (chickpea, lentil, dry bean)	14	Weed control	CDC, SPARC/Wheatland, Scott/WARC
Lentil	5	Weed control	CDC, IHARF, Scott/WARC
Millet	5	Weed control	IHARF, Scott/WARC
Hemp	4	Weed control	CDC, Scott/WARC
Saskatoon berry	4	Insect control	Horticulture, U. of S.
Alfalfa seed	3	Weed control	IHARF, Scott/WARC
Mustard	3	Weed control	CDC
Flax	2	Weed control	CDC, SPARC/Wheatland
Dry bean	2	Weed control	CDC, Scott/WARC
Sunflower	2	Weed control	
Cumin	2	Disease control	Horticulture, U. of S.
Caraway	2	Disease control	Horticulture, U. of S.
Coriander	2	Disease control	Horticulture, U. of S.
Pumpkin	2	Disease control	Horticulture, U. of S.
LL Corn	2	Weed control	SPARC/Wheatland, PFRA-CSIDC
Potato	1	Insect control	Horticulture, U. of S.
SRIC poplar	1	Weed control	PFRA-Shelterbelt Centre
Fenugreek	1	Weed Control	SPARC/Wheatland

(CDC – Crop Development Centre; SPARC/Wheatland – Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.; Scott/WARC - *Agriculture & Agri-Food Canada Research Farm/Western Applied Research Committee; IHARF – Indian Head Agricultural Research Foundation; U. of S. – Horticulture Department and Native Fruit Development Program)*

The majority of trials related to crop specific product screening, crop tolerance and/or label improvement. As expected, not all crop specific product screening was successful in identifying potential solutions. However, specific successes and accomplishments are noted below;

- Chickpea: Majority of trials involved sulfentrazone alone or in tank-mix with isoxaflutole. Minor Use Registration of sulfentrazone on chickpea pending. Use of glyphosate pre-harvest registered.

- Hemp: Screening trials for development data package for minor use registration of broadleaf weed control and broadleaf and grassy weed control tank mixes.

- Saskatoon berry: Insecticide trial for insect control, Superior Oil registered, Matador (cyhalothrin-lambda) and spinosad registration pending. Dipel 2X DF registration pending further data.

- Flax: Minor Use Registration of sulfentrazone pending.

- Alfalfa for seed: Screening program for Canada thistle control. National A priority without a solution.

- Liberty Link Corn: Minor Use Registration for the use of Liberty 200SN (glufosinate ammonium) on Liberty Link corn in Saskatchewan and Alberta.

- SRIC Poplar: Minor Use Registration of Goal 2XL (oxyfluorfen) herbicide on short rotation intensive cultivation poplar (SRIC).

E. CONCLUSIONS AND RECOMMENDATIONS

The Minor Use of Pesticide Research Initiative met its objectives, specifically;

- It developed data that was used for the minor use registration of specific products on specific crops,
- It developed data that has become part of data packages for minor use registration applications that are currently pending registrations,
- It developed data that will become part of data packages for future minor use registration applications, and
- It provided data on new crop/pesticide/pest combinations that will provide valuable background information for future minor use trials.

Future minor use research in Saskatchewan will largely depend on two factors;

1. The future of the Agriculture Policy Framework funded National Minor Use of Pesticides Program at AAFC. This program has been extremely successful and has addressed many of Saskatchewan historical and emerging minor use priorities, and,
2. The research capacity for minor use research in Saskatchewan. This capacity has declined over the last several years.

Regardless, there is a strategic need for minor use of pesticide research for prairie agriculture for the foreseeable future. However, the need for and the capacity to conduct a specific Saskatchewan program will be dependent upon the two factors noted previously.

F. BUDGET – Expenditure Statement

Appendix I: Trials by Year

A. 2002

Trial	Location
Pre Emerge Fall Weed Control in Chickpea	Crop Development Centre
Pre Emerge Weed Control in Chickpea	Crop Development Centre
Chickpea Re-crop Tolerance - sulfentrazone	Crop Development Centre
Chickpea Tolerance to Isoxaflutole herbicide	Crop Development Centre
Weed Control in Pinto Dry Bean	Crop Development Centre
Dry Bean Re-crop Tolerance	Crop Development Centre
Weed Control in Canaryseed - Tolerance	Crop Development Centre
Weed Control in Canaryseed – Puma Super	Crop Development Centre
Weed Control in Canaryseed – 2,4-D pre-seeding	Crop Development Centre
Solin Tolerance to Sulfentrazone	Crop Development Centre
Pre Emerge Weed Control in Chickpea	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
Weed Control in Chickpea with Isoxaflutole herbicide	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
Chickpea Tolerance to Isoxaflutole herbicide (Desi and Kabuli)	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
Screening of Insecticides for use in Saskatoon Orchards	Native Fruit Development Program, University of Saskatchewan
Pre Emerge Fall Weed Control in Chickpea	Scott Research Farm/Western Applied Research Committee
Chickpea Re-crop Tolerance - sulfentrazone	Scott Research Farm/Western Applied Research Committee
Weed Control in Chickpea with Isoxaflutole herbicide	Scott Research Farm/Western Applied Research Committee
Chickpea Tolerance to Isoxaflutole herbicide (Desi and Kabuli)	Scott Research Farm/Western Applied Research Committee
Weed Control in Pinto Dry Bean	Scott Research Farm/Western Applied Research Committee

Dry Bean Re-crop Tolerance	Scott Research Farm/Western Applied Research Committee
Weed Control in Canaryseed - Tolerance	Scott Research Farm/Western Applied Research Committee
Weed Control in Canaryseed – Puma Super	Scott Research Farm/Western Applied Research Committee

B. 2003

Trial	Location
2003-08 Chickpea Weed Control with Isoxaflutole	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
2003-11 Chickpea Tolerance to Isoxaflutole	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
2003-14 Recrop tolerance (Chickpea) – from treatments of Isoxaflutole in 2002	Agriculture & Agri-Food Canada/ Wheatland Conservation Area Inc.
2003-01 Canaryseed Crop Tolerance – Puma Super and Mixes	Crop Development Centre
2003-06 Chickpea Weed Control with Isoxaflutole	Crop Development Centre
2003-09 Chickpea Tolerance to Isoxaflutole	Crop Development Centre
2003-12 Recrop tolerance (Chickpea) – from treatments of Isoxaflutole in 2002	Crop Development Centre
2003-15 Canaryseed Crop Tolerance – 2 to 3 and 4 to 5 leaf stage	Crop Development Centre
2003-02 Canaryseed Crop Tolerance – Puma Super and Mixes	Scott Research Farm/Western Applied Research Committee
2003-07 Chickpea Weed Control with Isoxaflutole	Scott Research Farm/Western Applied Research Committee
2003-10 Chickpea Tolerance to Isoxaflutole	Scott Research Farm/Western Applied Research Committee
2003-13 Recrop tolerance (Chickpea) – from treatments of Isoxaflutole in 2002	Scott Research Farm/Western Applied Research Committee
2003-16 Canaryseed Crop Tolerance – 2 to 3 and 4 to 5 leaf stage	Scott Research Farm/Western Applied Research Committee
2003-21 Tolerance – Sunflower Rates of Sulfentrazone	Scott Research Farm/Western Applied Research Committee
2003-03 Canaryseed Crop Tolerance – Puma Super and Mixes	Indian Head Agricultural Research Foundation
2003-17 Canaryseed Crop Tolerance – 2 to 3 and 4 to 5 leaf stage	Indian Head Agricultural Research Foundation
2003-22 Tolerance – Sunflower Rates of Sulfentrazone	Indian Head Agricultural Research Foundation

C. 2004

Trial	Location
2004-05 Canaryseed Crop Tolerance – Puma Super and Mixes	Crop Development Centre
2004-06 Recrop Tolerance (Chickpea) – from Treatments of Sulfentrazone in 2003	Crop Development Centre
2004-07 Recrop Tolerance (Chickpea) – from Treatments of Sulfentrazone in 2002	Crop Development Centre
2004-08 Chickpea Weed Control with Isoxaflutole	Crop Development Centre
2004-04 Canaryseed Crop Tolerance – Puma Super and Mixes	Scott Research Farm/Western Applied Research Committee
2004-09 Canaryseed Crop Tolerance – Puma Super and Mixes	Indian Head Agricultural Research Foundation
2004-10 Canaryseed Crop Tolerance – Puma Super and Mixes	Wheatland Conservation Area Inc.
2004-02 Recrop Tolerance (Chickpea) – from Treatments of Sulfentrazone in 2003	Wheatland Conservation Area Inc.
2004-01 Recrop Tolerance – from Treatments of Sulfentrazone in 2002	Wheatland Conservation Area Inc.
2004-03 Chickpea Weed Control with Isoxaflutole	Wheatland Conservation Area Inc.
Corn – Liberty Link Efficacy	Wheatland Conservation Area Inc.
Corn – Liberty Link Efficacy	Canada Saskatchewan Irrigation Development Centre, Outlook

D. 2005

Trial	Location
2005-14 Goal 2XL efficacy and crop tolerance on SRIC poplar	AAFC PFRA Shelterbelt Centre
2005-02 Potential for low rates of tank-mixes of sulfentrazone and isoxaflutole to control broadleaf weeds in chickpea.	Crop Development Centre
2005-03 Tolerance of Yellow and Oriental mustard to sulfentrazone.	Crop Development Centre
2005-04 Tolerance of Flax to sulfentrazone.	Crop Development Centre
2005-12 Options for incrop control of broadleaf weeds – foxtail millet	Indian Head Agricultural Research Foundation
2005-13 Canaryseed Crop Tolerance – pre-emergence applications of Everest	Indian Head Agricultural Research Foundation

2005-08 Broadleaf and grassy weed control in Fenugreek with Odyssey	Wheatland Conservation Area Inc.
2005-09 Preharvest control with glyphosate on chickpea	Wheatland Conservation Area Inc.
2005-01 Evaluate the efficacy of seed treatments for the control of seedling blight of cumin.	Horticulture Department, University of Saskatchewan

E. 2006

Trial	Location
2006-01 To evaluate insecticides for control of wireworm of potato, as a possible replacement for thimet	Horticulture Department, University of Saskatchewan
2006-07 To improve the label recommendation for application of Quadris to control blossom blight of coriander and caraway	Horticulture Department, University of Saskatchewan
2006-08 To evaluate seed treatments and foliar applied fungicides for control of stand decline and blossom blight of cumin	Horticulture Department, University of Saskatchewan
2006-12 To evaluate foliar fungicide and post-harvest treatments for control of Sclerotinia rot of pumpkins	Horticulture Department, University of Saskatchewan
2006-02 To evaluate the broadleaf weed control and lentil crop tolerance of Pursuit and Solo when applied in the fall.	Scott Research Farm/Western Applied Research Committee
2006-03 To evaluate the broadleaf weed control and chickpea crop tolerance of Pursuit and Solo when applied in the fall.	Scott Research Farm/Western Applied Research Committee
2006-04 To define the optimum rate of sulfentrazone in chickpea	Scott Research Farm/Western Applied Research Committee
2006-05 To identify the optimum timing of sulfentrazone application in chickpea.	Scott Research Farm/Western Applied Research Committee
2006-06 To assess the phytotoxicity in a lentil re-crop from 2005 applications of low rates of tank-mixes of sulfentrazone and isoxaflutole.	Scott Research Farm/Western Applied Research Committee
2006-09 To evaluate the efficacy of bentazon / imazamox tank-mixes in controlling Canada thistle in alfalfa seed	Scott Research Farm/Western Applied Research Committee
2006-11 To evaluate tolerance of hemp to a number of herbicides	Scott Research Farm/Western Applied Research Committee
2006-02 To evaluate the broadleaf weed control and lentil crop tolerance of Pursuit	Indian Head Agricultural Research Foundation

and Solo when applied in the fall.	
2006-03 To evaluate the broadleaf weed control and chickpea crop tolerance of Pursuit and Solo when applied in the fall.	Indian Head Agricultural Research Foundation
2006-04 To define the optimum rate of sulfentrazone in chickpea	Indian Head Agricultural Research Foundation
2006-10 To provide producers options for incrop control of broadleaf weeds in foxtail millet (Golden German millet) for forage	Indian Head Agricultural Research Foundation
2006-02 To evaluate the broadleaf weed control and lentil crop tolerance of Pursuit and Solo when applied in the fall.	Crop Development Centre
2006-03 To evaluate the broadleaf weed control and chickpea crop tolerance of Pursuit and Solo when applied in the fall.	Crop Development Centre
2006-04 To define the optimum rate of sulfentrazone in chickpea	Crop Development Centre
2006-06 To assess the phytotoxicity in a lentil re-crop from 2005 applications of low rates of tank-mixes of sulfentrazone and isoxaflutole.	Crop Development Centre
2006-11 To evaluate tolerance of hemp to a number of herbicides	Crop Development Centre
2006-13 To evaluate tolerance of mustard to a number of herbicides	Crop Development Centre
2006-04 To define the optimum rate of sulfentrazone in chickpea	Wheatland Conservation Area Inc.

F. 2007

Trial	Location
2006-07 To improve the label recommendation for application of Quadris to control blossom blight of coriander and caraway	Horticulture Department, University of Saskatchewan
2006-12 To evaluate foliar fungicide and post-harvest treatments for control of Sclerotinia rot of pumpkins	Horticulture Department, University of Saskatchewan
2006-02 To evaluate the broadleaf weed control and lentil crop tolerance of Pursuit and Solo when applied in the fall.	Scott Research Farm/Western Applied Research Committee
2006-03 To evaluate the broadleaf weed control and chickpea crop tolerance of Pursuit and Solo when applied in the fall.	Scott Research Farm/Western Applied Research Committee

2006-04 To define the optimum rate of sulfentrazone in chickpea	Scott Research Farm/Western Applied Research Committee
2006-05 To identify the optimum timing of sulfentrazone application in chickpea.	Scott Research Farm/Western Applied Research Committee
2006-06 To assess the phytotoxicity in a lentil re-crop from 2005 applications of low rates of tank-mixes of sulfentrazone and isoxaflutole.	Scott Research Farm/Western Applied Research Committee
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2006-02 To evaluate the broadleaf weed control and lentil crop tolerance of Pursuit and Solo when applied in the fall.	Crop Development Centre
2006-03 To evaluate the broadleaf weed control and chickpea crop tolerance of Pursuit and Solo when applied in the fall.	Crop Development Centre
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